

REMARKS:

Minor changes are made to this specification. No new matter is introduced. Claims 2 and 3 are canceled without prejudice. Claims 1 and 4-7 are amended; marked up versions of the amended claims are attached hereto. Claims 1 and 4-7 are pending in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

The Examiner pointed out that the IDS previously submitted omitted the statement of relevancy for non-English language references. The IDS is re-submitted herewith with English translation of the abstracts.

The specification was objected to because of informalities. Changes have been made as requested by the Examiner.

Claims 1 and 5-7 were objected to because of informalities. Changes have been made as requested by the Examiners to correct the informalities.

Claims 4 and 7 were rejected as being indefinite. Changes have been made as requested by the Examiner. Regarding the amended language in claim 17, lines 15-16, the support can be found in the specification, for example, on page 34, line 13 to page 35, line 12. The claims are now believed to be definite.

Claims 1-3 were rejected as being anticipated alternatively by Hattori (USP 5,578,142), Feinberg (USP 4,636,578), Minning (15th IEEE Photovoltaic Specialists Conference), Walker (USP 4,067,764), Mori (USP 5,782,994), and Inoue (USP 5,252,141). These rejections are respectfully traversed.

Claim 1 has been amended to incorporate the subject matter of claims 2 and 3, which are canceled. Amended claim 1 is directed to a photovoltaic module having a semiconductor layer arranged on a substrate and sealed by an encapsulation material, wherein the end face of the encapsulation material defines a first slope, and the end face of the substrate defines a second slope parallel to the first slope. An embodiment is shown in Fig. 1, showing a surface 101a of the substrate and a surface 108a of the encapsulation material. None of the above references describe or suggest such first and second slopes. Hattori shows a slope in the filling material 17, but the substrate 1 does not form a slope. The other references do not even

show a slope in the encapsulation material. Accordingly, claims 1-3 are patentable over the cited references.

Claim 4 was rejected as being anticipated by Ishikawa (USP 5,507,880). This rejection is respectfully traversed.

Claim 4 is directed to a photovoltaic module having, inter alia, a sealing member for sealing the rear surface of the photovoltaic cells. The sealing member includes a principal encapsulation material covering a central area, and a steam barrier material different from the principal covering a peripheral area of the rear surface of the photovoltaic cells. Because the steam barrier material and the principal encapsulation material are different materials, it is possible to form the steam barrier material so that it does not contact the electrodes in the generation area of the photovoltaic cells if desired. Also, the encapsulation material such as EVA has advantages such as low cost, and a reflectivity close to that of glass. Further, since the steam barrier material is only applied to the peripheral area, the application is relatively simple (see pages 18-21 of the specification). The use of different materials for the central area and the peripheral area is neither described nor suggested by Ishikawa. In Ishikawa, the same steam barrier material covers the entire surface of the photovoltaic cells. Accordingly, claim 4 is patentable over Ishikawa.

Claim 5 was rejected as being anticipated by Inoue. This rejection is respectfully traversed.

Claim 5 is amended to more specifically describe the structure being claimed. As specified in amended claim 5, the output lead-out wire is drawn to the rear surface of the rear surface encapsulation material by way of an output lead-out section, and the output lead-out wire has a parallel section extending over a part of the rear surface encapsulation material. Another part of the rear surface encapsulation material extends over the output lead-out section and the parallel section of the output lead-out wire. Embodiments of the claimed structure are shown in Figs. 11-13. By means of this structure, especially the part of the rear surface encapsulation material that extends over the output lead-out section and

the parallel section of the output lead-out wire, the filling member in the output lead-out section is not exposed to the atmosphere.

This feature is not described or suggested in Inoue. Fig. 9 of Inoue shows a lead-out wire 109 extending straightly through the layers 301, 302 and 303. Although this schematic drawing does not show any gap between the wire 109 and the layers 301, 302 or 303, in practice such gaps most likely would exist. The structure of Fig. 9 does not provide any protection for such gap. Therefore, Inoue neither describes nor suggests the invention of claim 5.

Claim 6 is indicated as being allowable if amended to overcome the objections for informalities. The informalities have been corrected and claim 6 is therefore allowable.

No art rejection has been applied to claim 7. Since the objections and rejection under §112 have been overcome, claim 7 is believed to be allowable.


In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Reexamination and reconsideration of the application, as amended, are requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles, California telephone number (213) 337-6700 to discuss the steps necessary for placing the application in condition for allowance.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-1314.

Respectfully submitted,
HOGAN & HARTSON L.L.P.

Date: March 28, 2001

By: 
Louis A. Mok
Registration No. 22,585
Attorney for Applicant(s)

500 South Grand Avenue, Suite 1900
Los Angeles, California 90071
Phone: 213-337-6700
Fax: 213-337-6701